

CLAIMS

- 1 1. A tire pressure monitoring apparatus, comprising:
2 a gauge that displays a pressure reading; and
3 a saddle valve including:
4 (i) a base member adapted to sealingly and threadingly connect to
5 a tire valve stem,
6 (ii) an upper member constructed and arranged to move relative to
7 the base member at a predetermined time to transfer pressure from a tire to
8 the gauge, and
9 (iii) a locking mechanism that, when engaged, secures the upper
10 member in a position that provides constant fluid communication between
11 the tire and the gauge until the locking mechanism is disengaged.
- 1 2. The tire pressure monitoring apparatus as set forth in claim 1, wherein the locking
2 mechanism is engaged by rotating the upper member with respect to the base member.
- 1 3. The tire pressure monitoring apparatus as set forth in claim 2, further comprising:
2 a fastening means that connects the upper member to the base member,
3 wherein, in response to the upper member being rotated with respect to the base
4 member, the fastening means is displaced along a curvilinear channel in the base member
5 and acts to secure the upper member in a position providing constant fluid communica-
6 tion between the tire and the gauge.

1 4. The tire pressure monitoring apparatus as set forth in claim 1, further comprising
2 a center nub that contacts and depresses a preexisting valve in the tire valve stem in re-
3 sponse to the upper member being moved closer to the base member.

1 5. The tire pressure monitoring apparatus as set forth in claim 4, wherein the initial
2 spacing of the center nub and the preexisting valve is adjusted by raising or lowering the
3 upper member relative to the base member.

1 6. The tire pressure monitoring apparatus as set forth in claim 1, wherein the saddle
2 valve further includes a tap in fluid communication with the gauge.

1 7. The tire pressure monitoring apparatus as set forth in claim 6, wherein the gauge
2 is coupled to the tap by a feed line.

1 8. The tire pressure monitoring apparatus as set forth in claim 1, wherein the upper
2 member includes a secondary fill inlet constructed and arranged to enable pressure to be
3 transferred from a pressure source to the saddle valve.

1 9. The tire pressure monitoring apparatus as set forth in claim 8, wherein pressure is
2 transferred from the pressure source to the saddle valve after the locking mechanism is
3 engaged.

1 10. The tire pressure monitoring apparatus as set forth in claim 1, further comprising
2 a housing for the gauge adapted to be mounted on and supported by the saddle valve.

1 11. The tire pressure monitoring apparatus as set forth in claim 1, wherein the gauge
2 comprises a pressure transducer and an interconnected electronic display and wherein the
3 electronic display is mounted on a hub cap.

1 12. The tire pressure monitoring apparatus as set forth in claim 1, wherein the gauge
2 comprises a mechanical pressure gauge having graduations.

1 13. The tire pressure monitoring apparatus as set forth in claim 1, wherein the gauge
2 comprises an electronic pressure gauge in communication with a pressure transducer that
3 converts a pressure into an electronic signal.

1 14. The tire pressure monitoring apparatus as set forth in claim 13, further compris-
2 ing:

3 a radio transmitter, interconnected with the transducer, for converting the
4 electric signal to a radio signal; and

5 a receiver, interconnected to an electronic display, for converting the radio
6 signal to a signal reported by the electronic display, the electronic display being
7 located remote from the gauge.

1 15. The tire pressure monitoring apparatus as set forth in claim 1, further comprising
2 a mounting bracket that supports the gauge, the mounting bracket comprising a pliable
3 block that is form-fitting with respect to opposing spokes of the wheel.

- 1 16. The tire pressure monitoring apparatus as set forth in claim 15, wherein the block
2 includes a tunnel for providing clearance for the valve stem and a tap on the saddle valve.